

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12 December 2007 has been entered.

### ***Specification***

2. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

### ***Claim Objections***

3. Claims 1, 6, 8, 9, 12, 19, 20, and 24 are objected to because of the following informalities:

- (a) in claims 1, 6, 8, 9, 12, 19, 20, and 24, "(a.k.a., true color)" should probably be deleted since it is unclear if the recitation within parenthesis is a limitation (and there does not appear to be a written description of "true color" in the specification as filed as discussed *infra*);
- (b) in claim 8, "a true color visible imaging unit" on lines 5-6 should probably be --a visible imaging unit--;

- (c) in claim 8, "a SBUV imaging unit" on lines 13-14 should probably be --said SBUV imaging unit-- (see "a SBUV imaging unit" on line 5 in claim 8);
- (d) in claim 8, "a visible spectrum (a.k.a., true color) imaging unit" on line 16 should probably be --said visible imaging unit-- (see "a true color visible imaging unit" on lines 5-6 in claim 8);
- (e) in claim 8, "said visible spectrum (a.k.a., true color) imaging unit" on line 32 should probably be --said visible imaging unit-- (see "a true color visible imaging unit" on lines 5-6 in claim 8);
- (f) in claim 9, "visible spectrum (a.k.a., true color) imaging unit imaging unit" on line 7 should probably be --visible imaging unit-- (see "a true color visible imaging unit" on lines 5-6 in claim 8);
- (g) in claim 12, "visible spectrum (a.k.a., true color) imaging unit" on lines 6-7 should probably be --visible imaging unit-- (see "a true color visible imaging unit" on lines 5-6 in claim 8);  
and
- (h) in claim 24, "visible spectrum (a.k.a., true color) imaging unit" on lines 1-2 should probably be --visible imaging unit-- (see "a true color visible imaging unit" on lines 5-6 in claim 8).

Appropriate correction is required.

4. Claim 18 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The specification discloses (first paragraph on pg. 20) that "Ultraviolet image sensor 13 may be of any of the types

including but not limited to charge coupled devices, back illuminated charge coupled devices, and photocathode based devices such as image intensifier tubes, intensified charge coupled devices, and electron bombarded charge coupled devices". Independent claim 8 recites "an image intensified SBUV image sensor" in lines 25-26. Thus independent claim 8 requires an image intensified SBUV image sensor. However, "BCCD" as recited in dependent claim 18 does not appear to be an image intensified SBUV image sensor. Therefore, dependent claim 18 fails to further limit the subject matter of a previous claim.

***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 1-4, 6, 8-16, 18-32, 34, 35, and 59-62 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Applicant has not pointed out where the amended claims are supported, nor does there appear to be a written description of the claim limitation "a solar blind filter, image intensified sensor, and a UV photocathode" in the application as filed. The specification discloses (last paragraph on pg. 13) that "The UV image sensor is, according to one embodiment of the invention a fluorescent screen. According to another embodiment of the invention the UV image sensor is a UV solar blind image intensifier. Alternatively, the UV image sensor can be selected from

among CCD (Charged Coupled Device), BCCD (Back illuminated Charged Coupled Device), EBCCD (Electron Bombarded Charged Coupled Device), ICCD (Intensified Charged Coupled Device using intensifier), MCP-PMT (Microchannel Plate Photomultiplier) having multianode or other position sensitive anode output, or the like, for producing first electronic signals describing the said UV image” and (first paragraph on pg. 20) that “Ultraviolet image sensor 13 may be of any of the types including but not limited to charge coupled devices, back illuminated charge coupled devices, and photocathode based devices such as image intensifier tubes, intensified charge coupled devices, and electron bombarded charge coupled devices”. Thus the specification teaches photocathode based devices such as image intensifier tubes, intensified charge coupled devices, and electron bombarded charge coupled devices. However, there does not appear to be disclosure of an UV photocathode in addition to the photocathode in the image intensified sensor in the specification as filed. Therefore, amended independent claims 1 and 35 (and claims dependent on claims 1 and 35) contain subject matter that was not described in the specification as filed.

Applicant has not pointed out where amended independent claims 1 and 8 (and claims dependent on claims 1 and 8) are supported, nor does there appear to be a written description of the claim limitation “true color” in the application as filed.

Applicant has not pointed out where amended dependent claim 18 is supported, nor does there appear to be a written description of the claim limitation “the image intensified SBV image sensor is selected from among a group of sensors consisting of BCCD, EBCCD, ICCD, MCP-PMT having multianode, and MCP-PMT having position sensitive anode output” in the application as filed.

Art Unit: 2884

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 1-4, 6, 35, 60, and 62 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are the relationships between “a solar blind filter, image intensified sensor, and a UV photocathode” as recited in amended independent claims 1 and 35. The dependent claims are considered indefinite on the basis of their dependency.

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

11. Claims 8-16, 18-20, 22, 24, 27, and 61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ross *et al.* (US 3,748,471) in view of Dirscherl *et al.* (US 5,001,348) in so far as understood.

It should be noted that a claim containing a “recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus” (*Ex parte Masham*, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987)) if the prior art apparatus teaches all the structural limitations of the claim (MPEP § 2114). Thus, “electrical equipment” and “electrical discharge” were not given any patentable weight since both “electrical equipment” and “electrical discharge” appear to be external to the claimed apparatus and do not appear to impose any additional structural limitations on the claimed apparatus.

In regard to claims **8-16**, **18-20**, **24**, and **61**, Ross *et al.* disclose (Figs. 4 and 5) an apparatus for real time detecting, locating and visualizing in at least one of daytime outdoor illumination and equivalent artificial indoor illumination a non-visible radiation, comprising:

- (a) image acquiring means with a non-visible imaging unit (50, 90) and a true color visible imaging unit (52, 54, or passive optical element 106), for
  - (aA) acquiring through a same aperture of the apparatus and along a common optical axis an image of a scene that includes an object (12), the image spanning at least a visible spectrum and a non-visible spectrum, and

- (aB) simultaneously providing with first and second image acquiring elements such as beamsplitters (62, 64, 102) and optical lenses (*i.e.*, input lenses; column 4, lines 64-68)
  - (aBi) a non-visible image from the scene into said non-visible imaging unit (50, 90), and
  - (aBii) a visible spectrum image from the scene into a true color visible imaging unit (52, 54, or passive optical element 106);
- (b) said non-visible imaging unit (50, 90)
  - (bA) receives the scene's non-visible image from the image acquiring means,
  - (bB) comprising:
    - (bBa) passive optical elements such as a non-visible optical filter (70, 92) allowing transmittance of optical radiation in a non-visible spectral range only, and absorbing optical radiation in all other spectral regions (column 5, lines 1-9);
    - (bBb) non-visible image providing means comprising a non-visible image sensor for receiving the optical radiation in the non-visible spectral range only, passed through said non-visible optical filter (70, 92); and
    - (bBc) passive optical elements such as optical lenses (*i.e.*, input lenses; column 4, lines 64-68), and
  - (bC) producing a first visual image of the non-visible radiation from the scene, being a non-visible spectral image;

(c) said visible imaging unit (52, 54, or passive optical element 106) receiving said scene's visible spectrum image from the image acquiring means, and producing a second true color visible image (column 5, lines 63-68), representing the scene's visible spectrum image; and

(d) combining means (76, 55, beamsplitter 110) for

(da) receiving the first visual image of the non-visible radiation from the non-visible imaging unit (50, 90) and the second true color visible image from the visible imaging unit (52, 54, or passive optical element 106), and

(db) combining in real time by overlaying said first visual image of the non-visible radiation over said second visible spectrum image to create one combined visual image showing in real time the location and nature of the non-visible radiation on the visible spectrum representation of the scene with no parallax.

The apparatus of Ross *et al.* lacks an explicit description that the beamsplitter is a dichroic beamsplitter, the non-visible imaging unit comprises a solar blind ultraviolet optical filter passing optical radiation in a solar blind UV spectrum range only through a first lens to an image plane at which an image intensified SBUV image sensor is located, wherein the SBUV image sensor comprises an image intensified SBUV image sensor containing a fluorescent screen, and the visible image unit comprises a CCD. However, Ross *et al.* also disclose (column 6, lines 11-17) that "The present invention may be implemented using any suitable real-time image generating apparatus capable of developing several spectrally different images of the same object which can be either electrically or optically combined into a single composite image that accentuates certain characteristics of the object which would otherwise be



undetectable by the naked eye". Since Ross *et al.* do not disclose and/or require a specific imaging unit, one having ordinary skill in the art at the time of the invention would reasonably interpret the unspecified imaging units of Ross *et al.* as one or more of the known conventional imaging units that would not require further description. Further, Dirscherl *et al.* teach (column 11, lines 46-58) to coat surfaces of optical elements with selective filter layers, in order to evaluate a desired spectral range. Dirscherl *et al.* also teach (column 5, line 60 to column 6, line 59; column 11, lines 1-45) to provide ultraviolet optics (1 in Fig. 1) and an UV solar blind image intensifier comprising suitable filters, photocathode, image amplifier, fluorescent screen, and CCD, in order to detect the self- or characteristic-emission of a flying body exhaust gas stream in the ultraviolet spectral range with sensor devices which are blind to artificial and solar UV (column 2, lines 17-26) and to unambiguously locate and recognize an object. Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to provide a known conventional beamsplitter (*e.g.*, a dichroic beamsplitter) as the unspecified beamsplitter, a known conventional non-visible imaging unit (*e.g.*, comprising an UV photocathode, image intensifier, and fluorescent screen in combination with a suitable solar blind filter) as the unspecified non-visible imaging unit, and a known conventional visible imaging unit (*e.g.*, comprising a CDD) as the unspecified visible imaging unit in the apparatus of Ross *et al.*, in order to accentuate certain object characteristics which would otherwise be undetectable by the naked eye.

Applicant is advised that should claim 8 be found allowable, claim 61 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two

claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k). It should be noted that dependent claim 61 is directed to an apparatus. The intended uses (*i.e.*, "the electrical discharge is selected from the group consisting of partial discharge and arcing" as recited in claim 61) of the apparatus are of no significance in determining patentability of an apparatus claim (MPEP § 2115). Further, the intended use of the apparatus does not appear to imply any additional structure and thus dependent apparatus claim 61 is a substantial duplicate of apparatus claim 8.

In regard to claim **22** which is dependent on claim 8, Ross *et al.* also disclose (Figs. 4 and 5) electronic recording and/or displaying means (*e.g.*, 78) for recording and/or displaying the combined visual image.

In regard to claim **27** which is dependent on claim 8, Ross *et al.* also disclose (Figs. 4 and 5) stills camera means (78) for recording the combined visual image on a stills camera film (column 5, lines 28-31).

12. Claims 1-3, 6, 35, 60, and 62 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ross *et al.* (US 3,748,471) in view of Dirscherl *et al.* (US 5,001,348) and Kotze (GB 2 278 435 A) in so far as understood.

In regard to claims **1**, **2**, **6**, and **60**, Ross *et al.* in view of Dirscherl *et al.* is applied as in claims 8-16, 18-20, 24, and 61 above. The method of Ross *et al.* lacks an explicit description that the object is electrical equipment wherein object characteristics that would otherwise be undetectable by the naked eye are UV emittance caused by

electrical discharge (*e.g.*, partial discharge or arcing). However, Ross *et al.* also disclose (column 6, lines 11-17) that "The present invention may be implemented using any suitable real-time image generating apparatus capable of developing several spectrally different images of the same object which can be either electrically or optically combined into a single composite image that accentuates certain characteristics of the object which would otherwise be undetectable by the naked eye". Since Ross *et al.* do not disclose and/or require a specific object, one having ordinary skill in the art at the time of the invention would reasonably interpret the unspecified object of Ross *et al.* as any one of the known conventional objects that would not require further description. Further, Kotze teaches (second paragraph on pg. 1 to last paragraph on pg. 2) that characteristics (*e.g.*, partial discharge or arcing) of an object (*e.g.*, electrical equipment) that is undetectable by the naked eye can be determined by detecting non-visible radiation (*i.e.*, UV). Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to provide a known conventional non-visible imaging unit (*e.g.*, comprising an UV photocathode, image intensifier, and fluorescent screen in combination with a suitable solar blind filter) as the unspecified non-visible imaging unit in the method of Ross *et al.*, in order to accentuate certain object characteristics (*e.g.*, partial discharge or arcing on electrical equipment) which would otherwise be undetectable by the naked eye.

In regard to claim **3** which is dependent on claim 1, Ross *et al.* also disclose (Figs. 4 and 5) transferring the combined visual image into electronic recording and/or displaying means (*e.g.*, 78) for recording and/or displaying the combined visual image.

In regard to claims **35** and **62**, Ross *et al.* in view of Dirscherl *et al.* and Kotze is applied as in claims 1, 6, and 60 above. The method of Ross *et al.* lacks two different non-visible imaging units. Dirscherl *et al.* teach (column 11, lines 1-45) to detect multiple spectral ranges such as UV, VIS, and IR, in order to unambiguously locate and recognize an object. Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to provide two different non-visible imaging units (e.g., an IR imaging unit and an SBUV imaging unit) in the method of Ross *et al.*, in order to unambiguously locate and recognize an object.

13. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ross *et al.* (US 3,748,471) in view of Dirscherl *et al.* (US 5,001,348) and Kotze (GB 2 278 435 A) as applied to claim 3 above, and further in view of Applicant's Admitted Prior Art in so far as understood.

In regard to claim **4** which is dependent on claim 3, the modified method of Ross *et al.* lacks that the electronic recording and/or displaying means is a videotape. However, videotapes are well known in the art. For example, applicant admits (last paragraph on pg. 34 and third paragraph on pg. 39) as Prior Art that standard video equipment such as videotapes are well known in the art. Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to provide well known videotapes in the modified method of Ross *et al.*, in order to obtain a record of the combined visual image.

14. Claims 21, 23, 28-32, and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ross *et al.* (US 3,748,471) in view of Dirscherl *et al.* (US 5,001,348)

as applied to claims 3, 8, 22, and 35 above, and further in view of Applicant's Admitted Prior Art in so far as understood.

In regard to claim **21** which is dependent on claim 8, the modified apparatus of Ross *et al.* lacks that the combined visual image is obtained by at least one of arithmetic mixing, non-arithmetic mixing, luminance keying and chroma keying, for combining first and second electronic signals representing the first and second visible images, respectively. However, a combined visual image obtained by arithmetic mixing, non-arithmetic mixing, luminance keying or chroma keying is well known in the art. For example, applicant admits (last two paragraphs on pg. 23) as Prior Art that a combined visual image obtained by arithmetic mixing, non-arithmetic mixing, luminance keying or chroma keying is well known in the art. Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to provide well known means of arithmetic mixing, non-arithmetic mixing, luminance keying or chroma keying in the modified apparatus of Ross *et al.*, in order to obtain a combined visual image.

In regard to claim **23** which is dependent on claim 22, the modified apparatus of Ross *et al.* lacks that the electronic recording and/or displaying means is a videotape. However, videotapes are well known in the art. For example, applicant admits (last paragraph on pg. 34 and third paragraph on pg. 39) as Prior Art that standard video equipments such as videotapes are well known in the art. Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to provide well known videotapes in the modified apparatus of Ross *et al.*, in order to obtain a record of the combined visual image.

In regard to claims **28** and **29** which are dependent on claim 21, the modified apparatus of Ross *et al.* lacks an explicit description of a digital processing unit for processing at least one of the first and second electronic signals, for at least one of improving the contrast between the image of the UV emittance and the background scenery in the combined visual image, for the elimination of noise, the identification of UV emitters in the scene, and the capture of transient UV events in the scene.

Dirscherl *et al.* teach (column 5, lines 20-27) a digital processing unit for processing at least one of the first and second electronic signals, for at least one of improving the contrast between the image of the UV emittance and the background scenery in the combined visual image, for the elimination of noise, the identification of UV emitters in the scene, and the capture of transient UV events in the scene. Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to provide a digital processing unit in the modified apparatus of Ross *et al.*, in order to improve the contrast between the image of the UV emittance and the background scenery in the combined visual image, to eliminate noise, to identify UV emitters in the scene, and/or to capture transient UV events in the scene.

In regard to claim **30** which is dependent on claim 28, the modified apparatus of Ross *et al.* lacks that the processing unit is an analog processing unit. However, image processing units are well known in the art. For example, applicant admits (last two paragraphs on pg. 23) as Prior Art that analog processing units for image processing are well known in the art. Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to provide well known image processing

means (*e.g.*, analog processing units) in the modified apparatus of Ross *et al.*, in order to process a combined visual image.

In regard to claims **31**, **32**, and **34** which are dependent on claim 28, the modified apparatus of Ross *et al.* lacks means for providing an alarm or means for initiating action (*e.g.*, documentation of UV emitting events) as to the detection of SBUV emittance which is above a predefined threshold level. However, means for providing an alarm or initiating action are well known in the art. For example, applicant admits (last paragraph on pg. 28) as Prior Art that means for providing an alert or initiating action are well known in the art. Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to provide well known means providing an alarm or initiating action in the modified apparatus of Ross *et al.*, in order to indicate or initiate corrective measures.

15. Claims 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ross *et al.* (US 3,748,471) in view of Dirscherl *et al.* (US 5,001,348) as applied to claim 24 above, and further in view of Baril *et al.* (US 5,535,053) in so far as understood.

In regard to claims **25** and **26** which are dependent on claim 24, the modified apparatus of Ross *et al.* lacks that the modified apparatus is in a monocular or binocular form. Baril *et al.* teach (column 1, lines 16-65) to provide a monocular or binocular display, wherein each display type has advantages for different applications. Therefore it would have been obvious to one having ordinary skill in the art at the time of the

invention to provide a monocular or binocular display in the modified apparatus of Ross *et al.*, in order to obtain a display adapted for a desired application.

16. Claim 59 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ross *et al.* (US 3,748,471) in view of Dirscherl *et al.* (US 5,001,348) as applied to claim 8 above, and further in view of Willey (US 5,841,574) in so far as understood.

In regard to claim **59** which is dependent on claim 8, the modified apparatus of Ross *et al.* lacks that the image acquiring means comprises an optical lens which acquires SBUV and visible light beams from said common optical axis and transmits the SBUV light beams spanning the SBUV image towards the SBUV imaging unit, and a mirror in front of a central portion of said lens, for reflecting light in the visible spectrum towards the visible imaging unit. However, catadioptric-type optical systems are well known in the art. For example, Willey teaches (column 1, lines 7-25) to provide a catadioptric-type optical system for remote sensing and spectroscopy applications performed from satellites or spacecraft orbiting the Earth. Ross *et al.* also disclose (column 4, lines 3-9) viewing a forest from an aerial vantage point. Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to provide a catadioptric-type optical system in the modified apparatus of Ross *et al.*, in order to view a forest from an aerial vantage point.

### ***Response to Arguments***

17. Applicant's arguments filed 12 December 2007 have been fully considered but they are not persuasive.



Applicant argues (second paragraph on pg. 1 to first paragraph on pg. 2 of remarks filed 12 December 2007) that Ross *et al.*'s device can only generate false color images because it MUST have a filter that eliminates at least one color from the visible spectrum. Examiner respectfully disagrees. Ross *et al.* expressly teach (Fig. 5 and column 5, line 44 to column 6, line 10) a "visible image" for combination with a non-visible image in visible form (*i.e.*, a false color image wherein the non-visible wavelengths are represented by visible wavelengths) wherein no filter was used to eliminates at least one color from the "visible image".

Applicant argues (second paragraph on pg. 2 to second paragraph on pg. 3 of remarks filed 12 December 2007) that Ross *et al.*'s device is not identical to the claimed invention since Ross *et al.*'s device generates a COMPOSITE FALSE COLORED IMAGE. Examiner respectfully disagrees. First it is important to recognize that a non-visible image in visible form is a false color image because the non-visible wavelengths (*e.g.*, ultraviolet or infrared) must be represented by visible wavelengths (*e.g.*, red, green, or blue) in order to be view by an observer (98 in Fig. 5). Thus a composite of a non-visible image (in visible form) with another image will always be a false color image since the non-visible wavelengths must be represented by visible wavelengths.

Applicant argues (third paragraph on pg. 3 to first paragraph on pg. 5 of remarks filed 12 December 2007) that there is implicit antecedent basis for true color as used in the claims. Examiner respectfully disagrees. Applicant provides two definitions of true-color. The first definition provided is "A true-color image of a subject is an image that appears to the human eye just like as the original subject would". Thus the first definition relates to color

fidelity (i.e., how close in color is the image to the original subject as it appears to the human eye). The second definition provided is "True color is the specification of the color of a pixel on a display screen using a 24-bit value". Thus the second definition relates to the number of bits (i.e., a 24 bit value) used to represent color on a display screen. However, there does not appear to be any disclosure of (a) color fidelity or (b) the number of bits used to represent color on a display screen in the specification as filed.

Applicant argues (second paragraph on pg. 5 to second paragraph on pg. 7 of remarks filed 12 December 2007) that the Applicant's invention displays the visible spectrum view in true color through at least a conventional visible imaging device and when combined with the image from the SBUV imaging device the resulting image is a composite true color image that illustrates SBUV emittance. Examiner respectfully disagrees. The resulting composite image is not a true color image since the non-visible wavelengths must be represented by visible wavelengths.

Applicant argues (third paragraph on pg. 7 to fifth paragraph on pg. 11 of remarks filed 12 December 2007) that Kotze fails to address the missing limitations of the claimed invention. Examiner respectfully disagrees. Kotze teaches (second paragraph on pg. 1 to last paragraph on pg. 2) that characteristics (e.g., partial discharge or arcing) of an object (e.g., electrical equipment) that is undetectable by the naked eye can be determined by detecting non-visible radiation (i.e., UV). Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to provide a known conventional non-visible imaging unit (e.g., comprising an UV photocathode, image intensifier, and fluorescent screen in combination with a

suitable solar blind filter) as the unspecified non-visible imaging unit in the method of Ross *et al.*, in order to accentuate certain object characteristics (e.g., partial discharge or arcing on electrical equipment) which would otherwise be undetectable by the naked eye.

Applicant argues (last paragraph on pg. 11 to second paragraph on pg. 12 of remarks filed 12 December 2007) that the objection and rejection of claim 18 should be rescinded. Examiner respectfully disagrees. Independent claim 8 recites “an image intensified SBUV image sensor” in lines 25-26. Thus independent claim 8 requires an image intensified SBUV image sensor. However, “BCCD” as recited in dependent claim 18 does not appear to be an image intensified SBUV image sensor. Therefore, dependent claim 18 fails to further limit the subject matter of a previous claim. Further, there does not appear to be any disclosure that a “BCCD” is an image intensified SBUV image sensor in the specification as filed.

Applicant argues (third paragraph on pg. 12 of remarks filed 12 December 2007) that the rejected limitation of “a solar blind filter, image intensified sensor, and a UV photocathode” does have sufficient antecedent basis and the rejection should be rescinded. Examiner respectfully disagrees. As discussed supra, the specification discloses an image intensified sensor comprising a photocathode. However, there does not appear to be disclosure of an UV photocathode in addition to the photocathode within the image intensified sensor in the specification as filed. Further the claims do not expressly recite the structural connection between these two photocathodes.

Applicant argues (last paragraph on pg. 12 of remarks filed 12 December 2007) that the rejection of the claim limitation of “one combined and exactly registered true color visual image” should be rescinded. First it should be noted that the resulting composite image is not a true color image since the non-visible wavelengths must be represented by visible wavelengths. However, it is noted that “true color” appears to have been removed as a modifier for the “combined visual image”. Therefore, applicant's arguments with respect to the amended claims have been considered but are moot.

### ***Conclusion***

18. All claims are drawn to the same invention claimed in the application prior to the entry of the submission under 37 CFR 1.114 and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the application prior to entry under 37 CFR 1.114. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action after the filing of a request for continued examination and the submission under 37 CFR 1.114. See MPEP § 706.07(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shun Lee whose telephone number is (571) 272-2439. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta can be reached on (571) 272-2444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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SL

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